

Syllabus (fall 2023 @U of Tokyo)

Course Description

The goal of this course is to give you the basic tools needed to understand the latest work in IO and carry out original research. We will cover dynamic single decision models, dynamic games, production functions and auctions. Although these topics are somewhat diverse, we will have a unifying theme that connects all of these topics, which is the notion of formal identification.

The class will be a combination of lectures and discussion of assigned readings. I will cover methodological papers during class and ask you to read applied papers as assignments. We will devote some time in class to discuss the papers you've read. So please come prepared on those days.

I will upload slides on UTAS before class. I won't be printing them out. I will also post problem sets there. Please check the website at least once a week.

In terms of grading, your grade will be based on problem sets and class discussion. There will be 2 or 3 problem sets.

Below is a tentative outline of the topics I intend to go over in class, which is subject to change. I will try to include a list of related reading material in the slides every week.

Tentative Outline and Calendar

Week Of	Topic	Reading
(Wk 1)	Definition of formal identification. Identification of demand and supply in competitive markets.	None
(Wk 2)	Dynamic single-decision models. Hotz Miller, Hotz Miller Sanders Smith, Rust, Pakes	Burdett and Judd (1983)
(Wk 3)	Dynamic games, BBL, Pakes Ostrovsky, and Berry	
(Wk 4)	Auctions 1, FPSB GPV	Hodgson (2021)
(Wk 5)	Auctions 2, Collusion	Porter and Zona (1993, 1999)
(Wk 6)	Production Functions: Olley and Pakes (1996, ECMA) , Akerberg, Caves Fraser (2015, ECMA), Gandhi, Navarro, Rivers (2000, JPE)	Doraszelski, Seim, Sinkinson, Wang (2021)

Reading List

Basics on Identification

Imbens, G. W., and W. K. Newey (2009): “Identification and Estimation of Triangular Simultaneous Equations Models Without Additivity, *Econometrica*, 77(5)

C. Manski, *Identification Problems in the Social Sciences*, Harvard, 1995

C. Manski, *Partial Identification of Probability Distributions*, Springer-Verlag, 2003

*Matzkin, R.L. (1994) “Restrictions of Economic Theory in Nonparametric Methods,” *Handbook of Econometrics*, Vol. 4, edited by C.F. Engel and D.L. McFadden, Elsevier

*Matzkin, R.L. (2007) “Nonparametric Identification,” in *Handbook of Econometrics*, Vol. 6b, edited by J.J. Heckman and E.E. Leamer, Elsevier Science.

Matzkin, R.L. (1992) “Nonparametric and Distribution-Free Estimation of the Binary Choice and the Threshold Crossing Models,” *Econometrica*, Vol. 60, No. 2.

Matzkin, R.L. (1991) “Semiparametric Estimation of Monotone and Concave Utility Functions for Polychotomous Choice Models,” *Econometrica*, Vol. 59, No. 5, pp. 1315-1327.

Newey, W. K., and J. L. Powell (2003): “Instrumental Variable Estimation in Nonparametric Models,” *Econometrica*, 71(5), 1565–1578

Discrete Choice

*Berry, Steven T. “Estimating Discrete-Choice Models of Product Differentiation.” *The RAND Journal of Economics*, vol. 25, no. 2, 1994, pp. 242–62,

*Hotz, V. Joseph, and Robert A. Miller. “Conditional Choice Probabilities and the Estimation of Dynamic Models.” *The Review of Economic Studies*, vol. 60, no. 3 , 1993, pp. 497–529,

V. Joseph Hotz, Robert A. Miller, Seth Sanders, Jeffrey Smith, A Simulation Estimator for Dynamic Models of Discrete Choice, *The Review of Economic Studies*, Volume 61, Issue 2, April 1994, Pages 265–289

*Rust, John. "Optimal Replacement of GMC Bus Engines: An Empirical Model of Harold Zurcher." *Econometrica*, vol. 55, no. 5, 1987, pp. 999–1033,

*Magnac, T. and Thesmar, D. (2002), Identifying Dynamic Discrete Decision Processes. *Econometrica*, 70: 801-816.

Pakes, Ariel, and David Pollard. "Simulation and the Asymptotics of Optimization Estimators." *Econometrica*, vol. 57, no. 5, 1989, pp. 1027–57,

Dynamic Games

*Bajari, P., Benkard, C.L. and Levin, J. (2007), Estimating Dynamic Models of Imperfect Competition. *Econometrica*, 75: 1331-1370

*Pakes, A., Ostrovsky, M. and Berry, S. (2007), Simple estimators for the parameters of discrete dynamic games (with entry/exit examples). *The RAND Journal of Economics*, 38: 373-399.

*Richard Ericson, Ariel Pakes, Markov-Perfect Industry Dynamics: A Framework for Empirical Work, *The Review of Economic Studies*, Volume 62, Issue 1, January 1995, Pages 53–82

Ryan, Stephen P. "The Costs of Environmental Regulation in a Concentrated Industry." *Econometrica*, vol. 80, no. 3, 2012, pp. 1019–61

Collard-Wexler, A. (2013), Demand Fluctuations in the Ready-Mix Concrete Industry. *Econometrica*, 81: 1003-1037

Kalouptsi, Myrto. 2014. "Time to Build and Fluctuations in Bulk Shipping." *American Economic Review*, 104 (2): 564-608.

Production Functions

*Olley, G. Steven, and Ariel Pakes. "The Dynamics of Productivity in the Telecommunications Equipment Industry." *Econometrica*, vol. 64, no. 6, 1996, pp. 1263–97,

*Akerberg, D.A., Caves, K. and Frazer, G. (2015), Identification Properties of Recent Production Function Estimators. *Econometrica*, 83: 2411-2451.

*Amit Gandhi, Salvador Navarro, and David A. Rivers "On the Identification of Gross Output Production Functions," *Journal of Political Economy* 2020 128:8, 2973-3016

*De Loecker, Jan, and Frederic Warzynski. 2012. "Markups and Firm-Level Export Status." *American Economic Review*, 102 (6): 2437-71.

De Loecker, J. (2011), Product Differentiation, Multiproduct Firms, and Estimating the Impact of Trade Liberalization on Productivity. *Econometrica*, 79: 1407-1451

De Loecker, J., Goldberg, P.K., Khandelwal, A.K. and Pavcnik, N. (2016), Prices, Markups, and Trade Reform. *Econometrica*, 84: 445-510

Auctions

*Guerre, E., Perrigne, I. and Vuong, Q. (2000), Optimal Nonparametric Estimation of First-price Auctions. *Econometrica*, 68: 525-574.

*Athey, S. and Haile, P.A. (2002), Identification of Standard Auction Models. *Econometrica*, 70: 2107-2140.

Elena Krasnokutskaya, Identification and Estimation of Auction Models with Unobserved Heterogeneity, *The Review of Economic Studies*, Volume 78, Issue 1, January 2011, Pages 293–327,

Porter, Robert H., and J. Douglas Zona. "Detection of Bid Rigging in Procurement Auctions." *Journal of Political Economy*, vol. 101, no. 3, 1993, pp. 518–38,

Krasnokutskaya, Elena, and Katja Seim. 2011. "Bid Preference Programs and Participation in Highway Procurement Auctions." *American Economic Review*, 101 (6): 2653-86.

Ali Hortaçsu and David McAdams "An Empirical Analysis of the Turkish Treasury Auction Market" *Journal of Political Economy* 2010 118:5, 833-865

Partially Identified Models

*Pakes, A., Porter, J., Ho, K. and Ishii, J. (2015), Moment Inequalities and Their Application. *Econometrica*, 83: 315-334.

*Pakes, A. (2010), Alternative Models for Moment Inequalities. *Econometrica*, 78: 1783-1822.

*Philip A. Haile and Elie Tamer "Inference with an Incomplete Model of English Auctions," *Journal of Political Economy* 2003 111:1, 1-51

Ho, Katherine. 2009. "Insurer-Provider Networks in the Medical Care Market." *American Economic Review*, 99 (1): 393-430.